

WHAT IS CLAIMED IS:

1. An irradiation field extracting method of extracting an irradiation field from a radiation image, comprising the steps of:

5 extracting a characteristic point in the radiation image by using a geometric pattern for detecting an irradiation field edge; and

detecting an edge portion of said irradiation field on the basis of said characteristic points.

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2. A method according to claim 1, wherein the geometric pattern corresponding to a position of the irradiation field edge to be detected is used.

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3. A method according to claim 1, wherein in the extraction of said characteristic point, a relation between pixel value of a target pixel and peripheral pixel of said target pixel is compared with said geometric patterns and an irradiation field edge

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likelihood is scored.

4. A method according to claim 1, wherein in the detection of the edge portion of said irradiation field, a line having a possibility that they correspond to said irradiation field edge is extracted on the basis of said extracted characteristic point.

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5. A method according to claim 4, wherein in the detection of the edge portion of said irradiation field, whether said extracted line correspond to said irradiation field edge or not is determined.

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6. A method according to claim 1, wherein an image processing condition for said radiation image is set by using data in said detected irradiation field.

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7. An irradiation field extracting apparatus comprising:

geometric pattern extracting means for extracting a geometric pattern in a radiation image; and

15 irradiation field discriminating means for determining an irradiation field on the basis of the geometric pattern extracted by said geometric pattern extracting means.

20 8. An apparatus according to claim 7, wherein said geometric pattern extracting means comprises:

characteristic point extracting means for extracting a plurality of characteristic points constructing an edge from pattern of pixel value in said radiation image; and

25 line extracting means for extracting a plurality of lines from an image on the basis of said plurality of characteristic points extracted by said

characteristic point extracting means.

9. An apparatus according to claim 8, wherein said characteristic point extracting means comprises:

5       target pixel scoring means for calculating a score of a target pixel on the basis of a relation among pixel values of a plurality of pixels arranged on a line in the image; and

10       characteristic point discriminating means for determining whether the extracted point are the characteristic point or not on the basis of the score of the target pixel calculated by said target pixel scoring means.

15       10. An apparatus according to claim 9, wherein said characteristic point extracting means holds the score calculated by said target pixel scoring means as a score of the characteristic point, and

20       said line extracting means extracts line from the image on the basis of said held store of the characteristic point.

11. An apparatus according to claim 8, further comprising forming means for radiating a radiation to  
25       an object, thereby forming a radiation image.

12. A recording medium which records a computer-

readable program, wherein

said program is used for executing an irradiation field extracting method of extracting an irradiation field from a radiation image, and

5       said program comprises the steps of:

extracting a characteristic point in said radiation image by using a geometric pattern for detecting an irradiation field edge; and

10       detecting an edge portion of said irradiation field on the basis of said characteristic point.

13. An irradiation field extracting method of extracting an irradiation field from a radiation image, comprising the steps of:

15       holding a plurality of geometric patterns for detecting an irradiation field edge;

comparing a target pixel and peripheral pixel of said target pixel with said plurality of geometric patterns, thereby detecting pixel, as a characteristic point, having a possibility of being an edge portion of said irradiation field in said radiation image, and calculating a score indicative of the possibility that said characteristic point is the edge portion of said irradiation field; and

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25       obtaining a line showing the edge portion of said irradiation field from position and score of said detected characteristic point.

14. A method according to claim 13, wherein the line showing the edge portion of said irradiation field is a line in which a total of the scores of said characteristic points existing on said line is equal to  
5 or larger than a predetermined value.

15. A method according to claim 13, wherein a process for obtaining the line showing the edge portion of said irradiation field is executed to each of a left  
10 edge, a right edge, an upper edge, and a lower edge, and

said geometric pattern is changed in accordance with the position of the edge portion.

15 16. A method according to claim 15, wherein said geometric pattern is rotated in accordance with the position of the edge portion.

17. A program for executing an irradiation field  
20 extracting method of extracting an irradiation field from a radiation image, comprising the steps of:

holding a plurality of geometric patterns for detecting an irradiation field edge;

comparing a target pixel and peripheral pixel of  
25 said target pixel with said plurality of geometric patterns, thereby detecting pixels, as characteristic points, having a possibility of being an edge portion

of said irradiation field in said radiation image, and calculating a score indicative of the possibility that said characteristic point is the edge portion of said irradiation field; and

- 5            obtaining a line showing the edge portion of said irradiation field from position and score of said detected characteristic point.